

10/828,374

REMARKS

Claims 11-25 are all the claims pending in the application. Claims 16-20 are allowed. Claims 11-15 and 21-25 stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

A. The Rejection Based on Murphy and Higgins

Claims 11-15 and 21-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy et al. (U.S. Patent No. 5,855,755), hereinafter referred to as Murphy in view of Higgins, III (U.S. Patent No. 5,492,863), hereinafter referred to as Higgins. Applicants respectfully traverse this rejection because neither Murphy, nor Higgins teaches or suggests patterning a conductive polymer directly on an exterior conductor level of an integrated circuit chip in order to form passive devices. Applicants note that independent claims 11 and 21 define "patterning a conductive polymer directly on an exterior conductor level of said integrated circuit chip" and that "said patterning produces passive devices."

The Office Action argues that the electrical contacts formed from a conductive polymer in Higgins should be considered passive devices. More specifically, the Office Action opposes that a passive device is any device incapable of current gain or switching and that electrical contacts should therefore be considered passive devices. However, not only is this reasoning within the Office Action completely unsupported, is contrary to the

10/828,374

description of passive devices within the specification and is different than the claimed passive devices which are identified as RF devices (claims 12 and 22) resistors, capacitors, and inductors (claims 13 and 23).

One of the principal problems with classifying contacts or wiring as "passive devices" as is proposed in the Office Action is that they are not actually "devices" but instead are merely electrical conductors that connect one device to another device or one device to an exterior of the chip. One ordinarily skilled in the art (especially in light of the present specification) would not be motivated to classify contacts as passive devices, but instead would understand that the passive devices being claimed are actual "devices" such as those listed explicitly in the dependent claims including RF devices (claims 12 and 22) resistors, capacitors, and inductors (claims 13 and 23). Therefore, Applicants submit that the Office Action is taking an overly broad interpretation of the claim language "passive devices."

While it is important, during examination, to apply a broad interpretation to the claim language so as to provide a thorough and high-quality examination, it is equally important to avoid applying an overly broad interpretation to the claim language because doing so does little to determine the true novelty of the claimed invention. Here, the logic of the rejection within the Office Action appears to suggest that "anything" (not just devices) that is incapable of current gain or switching (which presumably could potentially include contacts, wiring, the substrate, air gaps, insulating layers, structural support members, etc.) should be considered some form of passive "device." Clearly those ordinarily skilled in the art would understand that these elements are not passive devices (and are not "devices" at all). Instead as defined by claims 12, 13, 22, and 23, as described in paragraph 22 of the specification, and as shown in Applicants' Figure 1, one

10/828,374

ordinarily skilled in the art would understand that the claimed passive devices are devices such as RF devices, resistors, capacitors, inductors, etc. Thus, the proposal in the Office Action that electrical contacts are passive devices would not be an interpretation acceptable to one ordinarily skilled in the art. Thus, it is Applicants' position that the rejection in the Office Action applies an overly broad interpretation to the claim language "passive devices" and that this renders the rejection defective.

As noted in the Office Action, Murphy only discloses forming an electrically conducting polymer resistor on a conducting or non-conducting substrate surface, and Murphy does not teach patterning a conductive polymer directly on the exterior conductor level of an integrated circuit chip. In order to cure this deficiency, the Office Action makes reference to Higgins. More specifically, the Office Action argues that the forming of the conductive bumps 24 (Figure 4), that are formed by patterning the material 18 in Figure 3 of Higgins, constitutes the patterning of a structure on an integrated circuit chip. However, Applicants note that the conductive polymer bumps 24 in Higgins comprise conductive contacts that are used to join the final metallization layer 14 to external structures. More specifically, the conductive polymer bumps 24 allow external devices to make electrical contact with the final metallization layer. The conductive polymer bumps 24 therefore do not comprise passive devices. To the contrary, independent claims 11 and 21 require that "said patterning produces passive devices."

The Office Action argues that Murphy discloses that the conductive polymer resistor can be utilized as active and passive devices; however, nowhere does Murphy teach or suggests that the passive devices should be formed directly on an exterior conductor level of an integrated circuit chip, as in the claimed invention. The Office

10/828,374

Action argues that the electrical contacts 24 of Higgins are passive devices. However, there are a number of problems with such a modification of Murphy and/or Higgins. One such problem is that the modification of the electrical contacts in Higgins renders the device in Higgins inoperable. The electrical contacts 24 in Higgins are needed to allow external devices to make electrical contact with the final metallization layer 14.

Substituting passive devices in place of the electric contacts 24 of Higgins renders the device in Higgins inoperable for its intended purpose because such a modification would not allow exterior devices to make electrical contact to the final metallization layer 14.

When a proposed modification of a known structure makes the known structure inoperable, it would not have been obvious to perform such a modification on the known structure.

Further, there is no teaching or suggestion in the prior art of record as to why one would have been motivated to substitute the passive devices for the electrical contacts 24 in Higgins. The Office Action does not explain wherein the motivation to modify Murphy and/or Higgins is located. Instead, at the bottom of page 3 of the Office Action, the rejection states that Higgins teaches patterning the conductive polymer from layer 18 and then at the top of page 4 of the Office Action a conclusion is reached that it would have been obvious to substitute the passive devices of Murphy in place of the electric contacts of Higgins. In other words there is no explanation or supporting documentation as to why one ordinarily skilled in the art would have been motivated to make the substitution suggested in the Office Action.

Simply put, Murphy discloses that an electrically conducting polymer can be utilized to form passive elements and Higgins teaches using a conductive polymer to form contacts to a final metallization layer; however, there is no motivation or teaching

10/828,374

that would lead one ordinarily skilled in the art to pattern passive devices from a conductive polymer directly on an exterior conductor level of an integrated circuit chip as claimed. Therefore, Applicants respectfully submit that independent claims 11 and 21 are not taught or suggested by the prior art of record because the prior art of record does not teach or suggest "patterning a conductive polymer directly on an exterior conductor level of said integrated circuit chip, wherein said patterning produces passive devices." Further, dependent claims 12-15 and 22-25 are similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features the dependent claims define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Rejection Based on Murphy, Higgins, and Hansen

Claims 14 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy et al. (U.S. Patent No. 5,855,755), hereinafter referred to as Murphy in view of Higgins, III (U.S. Patent No. 5,492,863), hereinafter referred to as Higgins, and Hansen et al. (U.S. Patent No. 4,115, 750) hereinafter referred to as Hansen.

Hansen is referenced for the limited purpose of teaching the use of a serpentine shape for a thin film resistor and the Office Action does not propose that Hansen teaches or suggests "patterning a conductive polymer directly on an exterior conductor level of said integrated circuit chip, wherein said patterning produces passive devices" as defined by independent claims 11 and 21. Therefore, the proposed combination of Murphy, Higgins, and Hansen would not teach or suggest the invention defined by independent claims 11 and 21. Therefore, independent claims 11 and 21 is patentable over the

10/828,374

proposed combination and dependent claims 14 and 24 are patentable not only because they depend from independent claims 11 and 21, but also because of the additional features dependent claims 14 and 24 define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The Rejection Based on Murphy, Higgins, and Yoder

Claims 15 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy et al. (U.S. Patent No. 5,855,755), hereinafter referred to as Murphy in view of Higgins, III (U.S. Patent No. 5,492,863), hereinafter referred to as Higgins, and Yoder (U.S. Patent No. 4,409,608).

Yoder is referenced for the limited purpose of teaching the use of an interdigitated capacitor and the Office Action does not propose that Yoder teaches or suggests "patterning a conductive polymer directly on an exterior conductor level of said integrated circuit chip, wherein said patterning produces passive devices" as defined by independent claims 11 and 21. Therefore, the proposed combination of Murphy, Higgins, and Yoder would not teach or suggest the invention defined by independent claims 11 and 21. Therefore, independent claims 11 and 21 are patentable over the proposed combination and dependent claims 15 and 25 are patentable not only because they depend from independent claims 11 and 21, but also because of the additional features dependent claims 15 and 25 define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

10/828,374

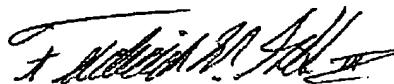
II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 11-25, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 50-0510.

Respectfully submitted,



Frederick W. Gibb, III
Reg. No. 37,629

Date: 6-06-06
Gibb I.P. Law Firm, LLC
2568-A Riva Road, Suite 304
Annapolis, Maryland 21401
(410) 573-1545
Customer No. 29154